CROSSTALK IDENTIFICATION IN xDSL SYSTEMS

Abstract

Methods, apparatus and systems for identifying crosstalk interference in xDSL systems are disclosed and are useful in a variety of xDSL systems to assist in the provisioning, maintenance and diagnosis of the xDSL system and in spectral management and assignments. Signal data are collected from a receiver, a primary transmitter and any crosstalk transmitters. The signal data are resampled, if necessary. A first estimate of the timing offset between the received signal and each crosstalk signal is then obtained by cross-correlating the received data with the transmitted crosstalk data. The first timing offset estimate is then used in connection with a least-squares estimation of the crosstalk response for the considered crosstalk data and a second estimate of the timing offset. The invention may be used at a third party site remote from the system transmitters and receivers. The crosstalk identification of the present invention can be used in dynamic spectrum management for DSL services and signals.